



*Published to advance the Science of cold-blooded vertebrates*

## SECOND OCCURRENCE OF SQUATINA IN NEW ENGLAND.

On September 23, 1921, there was taken in a trap at Menemsha Bight, Martha's Vineyard, Mass., an angelfish 43 inches in length. The fish was presented to the Bureau of Fisheries by the owner of the trap and was kept alive in the aquarium at Woods Hole for three weeks. The specimen was subsequently donated to the Boston Society of Natural History.

This appears to be the second recorded occurrence of *Squatina* in Massachusetts or New England. On September 1, 1873, a specimen was taken in a trap at Menemsha Bight and sent to Washington at the time.<sup>1</sup> There is a rather indefinite record of a still earlier capture at Woods Hole. Baird<sup>2</sup> lists *Squatina dumerili* among the species collected in 1871 and 1872, but this paper was published in 1873, and the old records of the station contain no reference to the occurrence of this fish prior to 1873; it is, therefore, possible that the inclusion of this species in Baird's list was on the strength of the definite capture cited.

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<sup>1</sup>Smith, H. M. The fishes found in the vicinity of Woods Hole. Bulletin U. S. Fish Commission for 1897, p. 89.

<sup>2</sup>Baird, Spencer F. List of fishes collected at Woods Hole. Report of Commissioner of Fish and Fisheries for 1871, p. 827.

*INERMIA VITTATA* POEY.

In his *Memorias* (1861) Professor Poey described a dainty little fish from Cuba under the name of *Inermia vittata*. In the appendix to the same volume he referred the species to the genus *Emmelichthys* Richardson, an error in which he was followed by Jordan and Gilbert. No subsequent writer seems to have found the species. I have just received, however, from Dr. Jan Metzelaar of the Netherlands Bureau of Fisheries, a fine specimen from Curaçao. This shows that the genus has no close relation to the Emmelichthyidae (*Emmelichthys*; *Erythrocles*=*Erythrichthys*, preoccupied; and *Boxaodon*), this family being characterized by the very broad scaly maxillary, not covered by the preorbital sheath. In *Inermia* as in the closely allied East Indian genus, *Dipterygonotus* Bleeker, the maxillary is narrow, scaleless, and completely sheathed by the preorbital. The two genera may constitute a distinct family, Dipterygonotidae. This group is perhaps allied to the Maenidae, (*Maenas*, *Spicara*, *Centracanthus*) differing at least in the separation of the dorsals, in the terete body and in the less protactibility of the upper jaw.

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## OBSERVATIONS ON YOUNG BLUEFISH

A series of 31 specimens of the Bluefish, *Pomatomus saltatrix*, taken in the pound nets at Young's Million Dollar Pier, Atlantic City, N. J., August, 1920, were found to be of the following sizes:

Total length, 14 cm. (1 example); 15 cm. (1); 16 cm. (2); 17 cm. (5); 18 cm. (8); 19 cm. (7); 20 cm. (3); 21 cm. (3); 24 cm. (1).

Apparently they were all of less than a year in age with the possible exception of the largest individual, which might have been a laggard from the spawning of 1919.

On examining the stomachs of these fish, it was

found that sixteen were empty. The remaining fifteen contained only remains of various small fish with traces of eel grass and sea-weed in three.

The following gives the food found, in volumetric percentages: *Poronotus triacanthus*, 13; *Leiostomus xanthurus*, 07; Fish, mangled remains, 66; Vegetable matter, 14.

The vegetable matter is given undue weight as two stomachs were empty except for slight traces of that substance and the only other individual containing it had taken but 5%, the remainder being fish.

Due to the fact that these specimens were taken in pound nets several constructions can be put on the analysis of their food.

Possibly the large percentage of empty stomachs was due to the fright of some while others went on feeding; or, possibly, the materials are not strictly representative, due to mere angry snapping in the general turmoil of the pound. On the other hand the fish might have entered the pound with their stomachs in the conditions found.

In one example, 19 cm. long, three tails of small butter-fish filled the stomach. This could be accounted for by the presence of many other fishes which would make the escape of the disabled *Poronotus* more likely. It is well known, however, that frequently the Bluefish in a state of nature will satisfy itself by this practice of merely taking the posterior part of a small fish.

It is possible that this is habitual with the species but it seems more likely to the writer that the more handy members of the large schools of fish on which this species usually preys diverts its attention from the individual originally attacked. In several cases, however, other portions of fish were present in a single stomach as well, which were no doubt the fore-parts of the same ill-fated Spot or Butterfish, whose hindquarters were swallowed first. The lack of any Menhaden (*Brevoortia tyrannus*) can not be accounted for as small examples were present in num-

bers equal to or greater than either of the other two species mentioned.

There appears to be a certain amount of correlation between the fullness of the stomach and the position in which the Bluefish relax in death. Arbitrarily three postures may be described; that is, with mouth closed or "normal"; with mouth wide agape; and with head thrown back and branchiostegals spread out around the throat as if gasping for breath.

In the case of those with the head thrown back 66+ % were turgid with food while of those whose mouths were shut 74+ % were entirely empty. The writer can not offer any explanation for the existence of such a correlation, but it hardly seems possible that this condition can be due to mere coincident.

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### RATTLESNAKES AND SPITTING SNAKES

How the rattlesnake got his rattle has probably been solved. Given the common habit, which many snakes have of vibrating the tail-tip when excited, and the shedding of the horny outer skin, which all snakes often must do, then the intermediate steps leading to the rattle, are doubtless more or less correctly set forth by Garman. The terminal scales having developed a constriction are not lost when shed but hang to one another until after a number of castings. The result is a string of shed coverings of the terminal spine or button forming in the aggregate the rattle. This being agitated makes the familiar sound, half mechanical or metallic and also half cicada-like when heard at a short distance. So far so good. The rattle has come into being—a slow process, quickly visualized. Why has the rattle been produced? Surely not to warn away prey; no such altruism is conceivable. The rattler lies in wait and strikes the rabbits and birds on which it feeds, with-

out rattling. At first sight, man seems to be its only enemy, but the rattle surely must be older than man on this continent. Deer and pigs sometimes kill rattlesnakes but rarely and locally only. Garman says, "By preventing cattle, horses and other animals from treading upon him, the rattling would certainly prove beneficial. It is likely that, beyond this, the greater benefits are derived in the prevention of useless expenditure of venom upon objects unfit for prey." Garman here was on the right track.

That the rattling tail serves to attract the attention of the prey away from the lethal head, so that the strike may be more successful, something which Garman also suggests, is hardly worth considering for the reason that when the creature is coiled to strike, head and tail-tip are in close proximity. What native wild animal, then, did rattlesnakes have to fear on a wholesale scale which coincided in its general distribution with some possible area where the snakes may conceivably have been evolved? The formerly wide-ranging bison fulfills the conditions. The grazing herds of bison certainly endangered rattlesnakes by treading them down and Coronado speaks of meeting "the cows" away south in what is now New Mexico. The rattlesnake bit the bison's nose—as the great Florida diamond-back often now kills the introduced half-feral cattle. The Florida rattlesnake is a giant and is specialized as to size but the more primitive plains rattlesnakes would not kill bison, although they would cause great pain. The snakes and the ruminants, then, must find it mutually worth while to avoid each other, and with the sounding of the rattle they can do so.

A point which might check this postulate would be to seek elsewhere other similar environmental conditions and see whether there some such beneficial arrangement has resulted. The African veldt is the only other region in the world where snakes abound and where hoofed animals grazed in numbers comparable with those of the western American plains.

Snakes probably found the heavy antelopes equally dangerous though unwitting foes and many antelopes probably suffered from snake bite. No rattle was evolved, however, but some of the common veldt-ranging snakes secured protection in another way. Several common cobras and cobra-allies learned to expell their poison in a fine spray for very considerable distances, and with a fairly shrewd aim at the eye. The poison, of course, is not caustic, the skin is unaffected; prey cannot be secured by this means but the moist eye allows of an absorption so rapid that sharp pain and subsequent photophobia instantly results from the contact. Gardeners who work stooping about shrubbery have come into the Bulawayo hospital with acute conjunctivitis. The Dutch call *Sepedon* the "Spuw slang" or spitting snake, a poor name, however, as the saliva is not involved. Natives know the habit and fear all spitting snakes. Here again, however, the habit must antedate man's coming, for contact between man and the snakes can hardly be conceived as sufficiently frequent to account for the modification. Moreover, the modification would not have been particularly protective since man would inevitably become increasingly prone to kill the offensive reptiles. Against hordes of grazing ruminants, however, the protection is probably perfectly efficient. The eyes are easily assailed and the injured creature rushes away followed doubtless by its comrades. The snake thus, whether aided by a warning sound or by the infliction of transitory pain, is aided at the time of its most frequent danger.

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#### AN UNUSUAL TYPE OF ABNORMAL COLORATION IN LIZARDS

Absence or excessive development of one or more of the dermal pigments has been noted repeatedly in reptiles and amphibians. Albinism, erythrisms or melanism may result when these changes exceed the

ordinary limits of individual variation. Thus, a specimen of *Crotalus oregonus* (Cal. Acad. Sci. No. 38098) from Thompson, Grand County, Utah, is creamy white without any darker markings. Here, pigment is lacking both as regards the ground color and the pattern. Another type of abnormal pigmentation is seen in certain specimens of lizards. In these, the usual ground colors are perfectly developed but the pattern is entirely lacking. This is not of frequent occurrence, for I have seen it only in one *Gerrhonotus scincicauda scincicauda* and two *Sceloporus scalaris*. One of the latter was kept alive for over a month without any change in coloration. The absence of dark markings, therefore, appears to be permanent, and to have nothing in common with such changes as one observes in *Uta stansburiana*, for instance, where the dark dorsal blotches may come and go from day to day.

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#### A NORTHERN RECORD FOR THE WATER MOCCASIN

During the past few summers a snake has been seen a number of times among some old logs in a small creek near Bristol, Harrison County, West Virginia. Attempts to collect it have failed, although opportunities to observe it rather closely have been had on one or two occasions.

Its ground color was dark-brown with blotches of darker brown, the head being much darker than the rest of the body. The upper lip has a whitish streak that extended well back, almost to the neck. From this description it would seem to be the Water Moccasin, *Agkistrodon piscivorus*.

As far as I can discover, this seems to be the most northern record for this form.

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ON THE OCCURRENCE OF *DRY-*  
*MARCHON DICHROUS* (PETERS)  
IN BRITISH GUIANA

Four specimens of *Drymarchon dichrous* (Peters) were secured by the expedition sent to Demerara in 1914 by the University of Michigan. The species was found at Dunoon on the Demerara River, and the specimens were taken on the sand reef, and in the lowland forest, and in trees, on the ground and in the water. This locality greatly extends the range of the species.

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CORYTHOICHTHYS

In Jordan & Evermann, Fish. N. M. Amer. 1. p. 761, the name *Corythoichthys* Kaup, given to a genus of Pipe-fishes was spelled, through a copyist's slip: "*Corythroichthys*," with a redundant *r*. This error was not noticed at the time, and has been copied by the writer, who failed to verify the spelling, and by various subsequent authors, including a valued correspondent of *Copeia*.

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